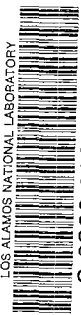


# THE ATOM

Los Alamos Scientific Laboratory

September, 1965



3 9338 00819 9720

LOS ALAMOS NATIONAL LABORATORY



September, 1965

Volume 2 Number 10

Published monthly by the University of California,  
Los Alamos Scientific Laboratory, Office of Public Relations,  
P.O. Box 1663, Los Alamos, New Mexico, 87544.  
Second Class Postage paid at Los Alamos, New Mexico.

*Editor:* Earl Zimmerman

*Photography:* Bill Regan and Bill Jack Rodgers

*Contributors:* Members of the PUB staff

Office: D-413 Administration Building. Telephone: 7-5236.

Printed by The University of New Mexico Printing Plant, Albuquerque.

**ON THE COVER:** Just some of the 2,700 journals  
received regularly by LASL Libraries are shown  
in Bill Jack Rodgers' photo. An account of this  
ubiquitous Laboratory arm starts on Page 3.

*Los Alamos Scientific Laboratory,  
an equal opportunity employer,  
is operated by the University of California  
for the United States Atomic Energy Commission*

# Short Subjects

Lloyd P. Reinig has been named Alternate Department Head of the Engineering Department (ENG). Reinig, an Electrical Engineering graduate of Gonzaga University and a World War II Army veteran, came to Los Alamos from Hanford, Wash., where he was with General Electric Corporation in various phases of plant and maintenance engineering since 1954, most recently as manager-plant engineer of the N-Reactor Project that GE conducts for the Atomic Energy Commission. Reinig and his wife have six children, and have purchased a lot on Baranca Mesa.



Reinig, an Electrical Engineering graduate of Gonzaga University and a World War II Army veteran, came to Los Alamos from Hanford, Wash., where he was with General Electric Corporation in various phases of plant and maintenance engineering since 1954, most recently as manager-plant engineer of the N-Reactor Project that GE conducts for the Atomic Energy Commission. Reinig and his wife have six children, and have purchased a lot on Baranca Mesa.

Reinig, an Electrical Engineering graduate of Gonzaga University and a World War II Army veteran, came to Los Alamos from Hanford, Wash., where he was with General Electric Corporation in various phases of plant and maintenance engineering since 1954, most recently as manager-plant engineer of the N-Reactor Project that GE conducts for the Atomic Energy Commission. Reinig and his wife have six children, and have purchased a lot on Baranca Mesa.

W. C. Courtright of the Safety Office (H-3) spoke to 80 young Indian people at the Taos Pueblo on July 28. The lecture, on Accident Prevention, was for the pueblo's Neighborhood Youth Corps program and was to an audience ranging from 16 to 21 years in age.

"Your Stake in the Atom," a display on atomic energy research and development, will be presented at the New Mexico State Fair in Albuquerque September 16-26. The free exhibit will be housed in a portable geodesic dome and contains animated and audience participation displays. The exhibit is touring major fairs in the nation and is managed by the Oak Ridge Institute of Nuclear Studies, a nonprofit educational corporation of 40 Southern universities and colleges under contract with the Atomic Energy Commission.

Nobel Prize winner Willard F. Libby will be speaker at a Laboratory colloquium at 8:10 a.m. September 7. Dr. Libby, who was a member of the Atomic Energy Commission from 1954 to 1959, is Professor of Chemistry at the University of California in Los Angeles. He won the Nobel Prize in Chemistry in 1960 for his development of the use of radiocarbon (carbon 14) as a sort of atomic clock to determine the age of fossil remains and other ancient objects antedating recorded history. Dr. Libby's colloquium presentation will be on a technical subject, "Space Chemistry."



Dr. Libby, who was a member of the Atomic Energy Commission from 1954 to 1959, is Professor of Chemistry at the University of California in Los Angeles. He won the Nobel Prize in Chemistry in 1960 for his development of the use of radiocarbon (carbon 14) as a sort of atomic clock to determine the age of fossil remains and other ancient objects antedating recorded history. Dr. Libby's colloquium presentation will be on a technical subject, "Space Chemistry."

Dr. Libby's colloquium presentation will be on a technical subject, "Space Chemistry."

Robert H. Dinegar of GMX-7, a lieutenant commander in the Naval Reserve, was chairman of the annual Seminar in Applied Research of the Office of Naval Research that was held at Sandia Base in Albuquerque August 1-13 for 84 Naval Reserve officers. Seminar speakers included LASL staff members George Cowan, Louis Rosen and James Taub. The reservists toured Laboratory facilities on August 11.

Three veteran employees of the Los Angeles Purchasing Office have been awarded Laboratory service pins. The presentations, by Office Manager R. W. Johnson, were to Tommie Kennard, 20 years; Marian A. McClure, 15 years, and Violet Kazarian, 10 years.

## Shorts . . .

continued from preceding page

**Three specialized procurement groups** have been established in the Supply and Property (SP) Department. Designated SP-10, SP-11 and SP-12, they replace the general procurement activities formerly handled by SP-1 and reflect consolidation of SP activities as a result of the impending close-down of the Los Angeles Purchasing Office, according to Department Head **Harry S. Allen**. **Hugh Dubberly**, who headed SP-1, has been named Assistant Supply and Property Department Head for Procurement and will supervise the three new groups. SP-10 will deal with special products and will be headed by **P. M. Petersen**. **Lee Clay** is assistant group leader. SP-11 is to purchase fabricated and production items and is headed by **Robert Whitson**, who is moving to Los Alamos from Los Angeles. Assistant group leader is **Edward Wortmann**. SP-12, designated to handle procurement services, is headed by **Walter Sanborn**, also from Los Angeles. **Mrs. Dorothy Tully** is assistant SP-12 group leader.

**Duncan Curry, Jr.**, J Division group leader at the Nuclear Rocket Development Station in Nevada, retires September 3 after 15 years with the Laboratory.



Curry, 64, is a U.S. Naval Academy graduate and a retired Navy captain. He commanded both the tanker USS Ramapo and cruiser USS Detroit during World War II and served as head of the Department of Ordnance and Gun-

nery at the Academy and taught mathematics there. He was at one time the Navy Port Director at San Francisco. Curry lived in Los Alamos with his wife, Dortha and sons Duncan III and Stanley until his transfer to Nevada in 1962. The Currys plan to travel extensively after retirement.

## Ogle New J Division Head; Charles I. Browne is Aide

William E. Ogle, 47, has been named head of the Test (J) Division. Ogle, who was alternate division leader, fills the vacancy created by the death July 29 of Al Graves.

A member of the Laboratory staff since 1944, Ogle was present at the Trinity test in 1945 and



has participated in all Pacific nuclear tests and most Nevada Test Site operations. He was scientific advisor to Joint Task Force 8 during Operation Dominic in 1962 and was SA to Joint Task Force 7 for two earlier operations. He was an AEC

delegate to the 1959 Geneva Conference on Nuclear Test Suspensions.

Ogle holds a BA degree in physics and mathematics from the University of Nevada and MA and PhD degrees from the University of Illinois. He is a Fellow of the American Physical Society. He was born in Los Angeles, grew up in Las Vegas, Nev., is married and has three sons.

Charles I. Browne, Jr., who was Alternate Group Leader in J-11, has been named Assistant J Division Leader.



A LASL staffer since 1955, Browne is an Air Force veteran and has degrees from Drew University (AB), California Institute of Technology (MS), and University of California (PhD).

---

**Dr. G. Victor Beard**, Professor of Nuclear Engineering at the University of Utah, and Director of the Associated Rocky Mountain Universities, spent two weeks in July as a special consultant to the Health Physics Division at LASL.





Deep in Main Library stacks, clerk Manuel Lopez checks a reference request.

Photographs by Bill Jack Rodgers

# Data Depository

By DUDLEY LYNCH

Running a technical library for a sophisticated, far-ranging research facility like Los Alamos compares with firing a rocket at Mars. It is a matter of looking ahead, hoping that—when the time comes—you're at the right place with the appropriate materials.

Even then, the Mars probe has the advantage. Planets and their orbits you can predict. But second-guessing the upcoming requirements of a physicist who, at the moment, doesn't know them himself . . . that is a ticklish proposition.

LASL libraries have proved particularly adept at meeting the challenge.

The octopus-like system has at its disposal, 22 years after a modest beginning, 140,000 bound volumes, 2,700 regularly-received journals, 350,000 classified and unclassified reports, 32 branch libraries and a superbly-trained staff.

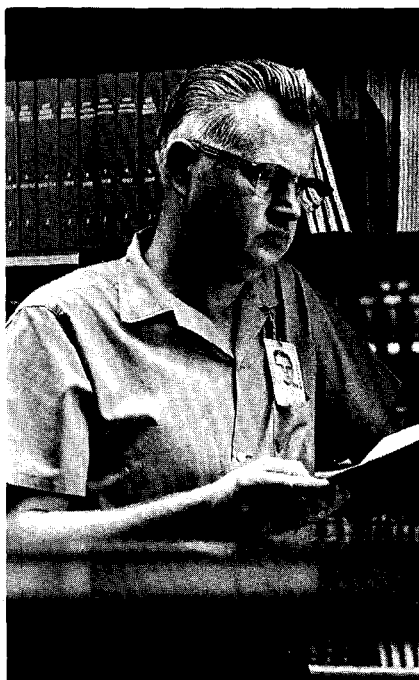
The voluminousness of the LASL library complex places it "among the leaders" of the nation's science and technical depositories, says Helen F. Redman, head librarian and group leader of D-2. "When consultants and scientific leaders come here, they are always astonished at its size," she notes. Since July, such interest has increased. That was when the Main Library was opened to the public, with a special invitation for use by university and other scientific personnel in the Rocky Mountain region.

As important as size, LASL collections are respected for their exhaustive thoroughness and scholarly orientation. "If LASL works on it, other libraries figure we have it," says J. Arthur Freed, chief of the Main Library. Because of the relative isolation of Los Alamos, the library has to be virtually independent, asserts Mrs. Redman. Interlibrary loan figures show just how independent it is: LASL li-

continued on next page



Helen Redman (right) D-2 group leader and head librarian, and Lois Godfrey, assistant head librarian, pause amid shelves containing several hundred of the 350,000 scientific reports that are kept on file in the Laboratory libraries.



Charles R. Machovec, alternate group leader of D-2, glances through bound journals. Collection is one of finest in the country, has much outside use.

## Libraries . . .

continued from preceding page

brarians requested loan of materials only 75 times last year while receiving 629 such inquiries.

LASL librarians earnestly try to anticipate the needs of staff members. This responsibility falls mainly on the shoulders of Freed and Gretchen Riese, head of branch libraries. They comb book reviews, Library of Congress proof sheets and publishers' lists each week, ferreting out relevant editions. Last year, the library spent \$153,773.27 on collection items and processed, in varying stages, 235,339 documentary pieces. Of the latter, 130,000 items were reports.

Despite the vigilance, a radical new program can send the library's Administration Building basement bailiwick into a tailspin. Project Rover, established in 1955, had this effect. News of LASL's involvement in the nuclear space propulsion program triggered a febrile search for new library materials—pertinent volumes and journals on aerodynamics, astrophysics and space in general. "We had some materials, but we had to become stronger," says Mrs. Redman.

A library was a natural concomitant in the Laboratory's early months. Scientists, arriving en masse in 1943, brought their own cherished tomes. Wives helped organize a repository, and Charlotte Serber, wife of Dr. Robert Serber, now a professor of physics at Columbia University, first held the plenary title, "Librarian."

Across the hall from the fledgling T Building library, a vault was designated to hold classified research reports, a supposedly temporary wartime expedient.

Prevailing on its parent-in-absentee, the University of California, the laboratory later borrowed a substantial book collection from Berkeley. It was essentially the only way to put sinew in a Los Alamos library. Books of the kind needed

had high priorities; moreover, a detailed order list would have circumscribed the character of work going on here. After the war most of UC's volumes were returned. Others which could not be located were paid for.

And then there was the matter of reports. The wartime accumulations "were relatively few in numbers, were limited in distribution, and were supposedly shortlived," relates Mrs. Redman. "In the late 1940's these restrictions began to break down. Many reports were no longer classified for security reasons, and they were given wider distribution and advertising. New reports began to appear."

As of today, reports are issued in near-deluge amounts. Mrs. Redman has emerged the Carrie Nation of U.S. special librarians with her jeremiads on the chaotic report number situation. There is no standard method of designating reports, no Dewey Decimal system. As the result, anything goes, and new report codes (or designations) multiply promiscuously.

"Clearly we can improve the situation if we want to," a miffed LASL head librarian wrote in "Special Libraries" magazine.

Practicing her own preaching, Mrs. Redman and Lois E. Godfrey, LASL assistant head librarian, spent three years, commencing in 1959, editing what assuredly will become a classic of its kind, despite the incongruity of being out-of-date at publication.

Weighing in at four pounds, the "Dictionary of Report Series Codes" lists 12,495 code numbers and letters identifying technical documents issued by 3,992 U.S. government agencies, contractors and foreign government agencies. It sells for \$12.75 and, though it hasn't made the best seller lists, it "has been extremely successful," its editors say.

But there is more to LASL libraries than reports. The system is,

*continued on next page*



*Group Leader Louis C. Smith discusses a reference with Secretary Adeline Damiano in the small but highly regarded GMX-2 Branch Library. This branch receives 39 subscribed journals and 100 others on routing from Main Library.*



*Hellen Keller, associate librarian for Weapon Data Index, returns withdrawn journals to their proper shelves.*

# Libraries . . .

continued from preceding page

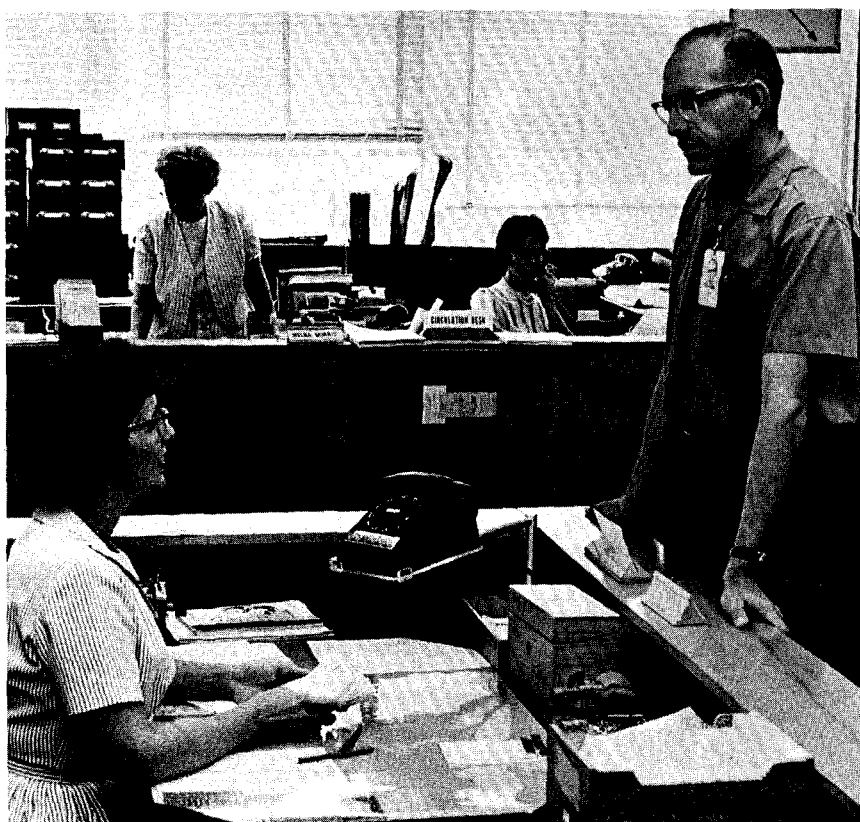
in one respect, like an iceberg—you never see it *in toto* at one time. The numerous branch libraries (of which No. 33 is planned in the new Occupational Hygiene Building) range from a 55-foot trailer, used mostly by Project Rover personnel, at the Nevada Test Site to the 22,000-volume medical facility in HRL Building. The library staff, interestingly, has its own branch.

The larger branches (other than medical) include CM, GMX-3, N-Division, Ten-Site, GMX-2 and P-Division (which has two sub-branches). Laboratory personnel, a librarian only half-jokingly told a recent main library tour party, "like to have lots of books on their shelves—literally." Branch library caretakers frequently come from the local divisions. The Nevada trailer, opened in November of 1963, is staffed by an employee of Pan-American World Airways, NRDS support contractor.

D-2, the library group, has 33 full-time equivalents on the staff. Some are housewives and others are trained but part-time employees. Ideal technical librarians have, like LASL's Freed, degrees in both scientific (anthropology in his case) and library fields. But more frequently, because of a scarcity of such people, it is a "have vacancy, will train" alternative. In a pinch, LASL libraries have even used an astronaut, if only briefly. (He delivered a badly-needed book earlier this year to the Lovelace Foundation in Albuquerque.)

Despite their tradition of rectitude, librarians occasionally get a tiger in their tanks, too.

LASL librarians take pleasure in relating an amusing, and recurring, incident surrounding a peripatetic volume, "The Eruption of Krakatoa," published in 1888 by the Royal Society of London. The story of the island's cataclysmic demise, the book is considered irreplace-



Art Freed, head librarian at the Main Library, discourses with Betty J. Burnett, assistant reference librarian. At the circulation desk are (left) Melba Morris, circulation clerk, and Vera Martinez, clerk for the Branch Libraries section.

able. Yet, during the Lab's nuclear test activities in the Pacific, LASL scientists vehemently insisted that the book must go with them.

Each time it went—but only, assures Mrs. Redman, after some harried scientist pledged its safety with his life.

Most library events are more mundane, but are just as vital to a smoothly-functioning research center.

Librarians meticulously prepare bibliographies. At staff members' bidding, they bring to bear research skills in tracing materials and elusive facts. They maintain exchange agreements with scientific institutions in 24 countries, from Argentina to Turkey (and are still looking for someone who can read Arabic). They make, or secure, translations of foreign journals and reports on request.

When a staff member publishes an article, the LASL librarians handle page cost arrangements, items of increasing magnitude (LASL spent \$30,000 on page costs last year). Reports originating at Los Alamos are distributed by the library, and reprints of virtually all LASL staff publications are faithfully fetched and filed.

Increasingly, the LASL library system is employing electronic data processing—and making attendant adjustments—to keep tab on its proliferating materials and to hasten their accessibility.

A comprehensive plan for use of computers has been worked out but only partially implemented. Uses thus far include routing of journals, listing of journal titles and holdings and the reports inventory. "Handling of library materials by computers is a fairly new



innovation and there's no hand-book or definite way to carry this out," says Charles Machovec, associate head librarian. "To a certain extent we have to work out the procedures as we go."

Computers also have played a vital role in a detailed compilation just completed by Helen Keller, associate librarian for the Weapon Data Index, with the aid of AO-4. The task involved updating the subject heading list--in reality, a dictionary of the nomenclature of nuclear weaponry--for the Joint Atomic Weapon Technical Information Group.

A top-secret document, the list of 8,386 headings (or terms) and their definitions or descriptions required four months to assemble. Only 30 final copies were prepared. Their purpose is to provide a standard list of terms to be used in indexing scientific reports dealing with atomic weapons and their effects.

Since July 1, the main library has maintained standard hours for the public, a situation still being evaluated by the staff. A baby's cry, a strange noise in a LASL library, has been heard occasionally, and librarians await with misgivings the day a senior staff member trips over a 10-year-old reading one of the more scholarly journals.

The library's all-encompassing mission, says its group leader, is to provide "anything in the field needed to support the Laboratory's program." That has included Biblical quotations (for which there are two Bible versions), the proper greeting for the queen of Greece (Emily Post came through) or Jack Dempsey's address (the New York telephone book listed his restaurant).

The library doesn't have "Lady Chatterley's Lover," concedes Machovec. But he adds, "If the Laboratory's program ever requires the book, we'll get it."



At stairwell to "downstairs stacks" in cellar beneath Main Library are Grace Roybal, ENG-3 secretary, and Angie Garcia (on stairs), secretary in ENG-2.

1965 Is Wet, But

# NOT THE WETTEST

By ED WALTERSCHEID

If you think that this has been a wet year, you're right— but it really hasn't been as wet as you think. Through July Los Alamos had 10.16 inches of precipitation. This is less than an inch above average for this time of year.

Rainfall in July was almost an inch below average; 2.25 inches versus the normal 3.13 inches.

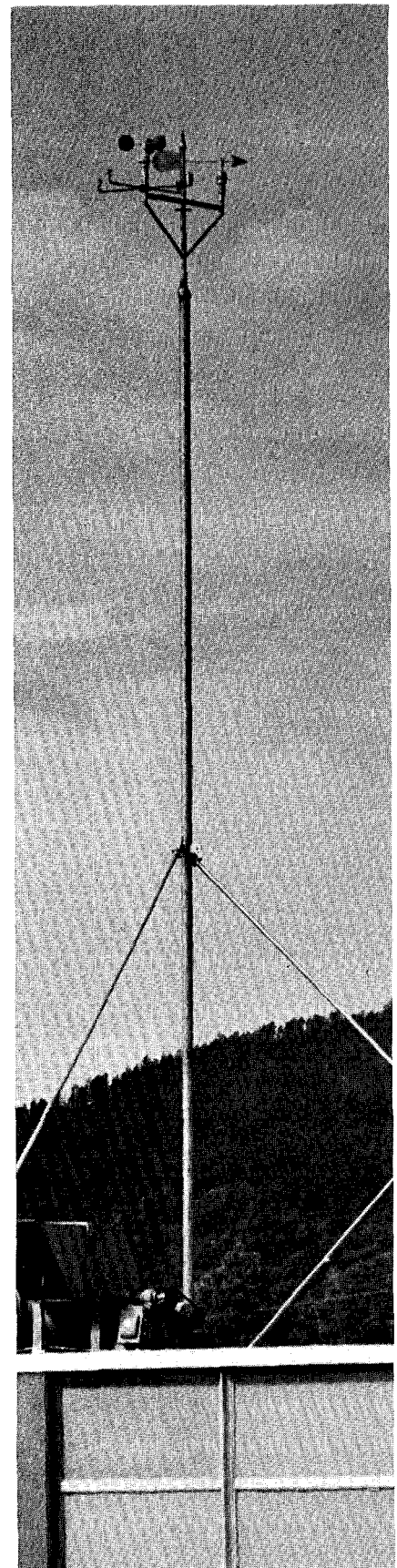
Why then the lush countryside? Meteorologist Orin Stopinski, H-6 Alternate Group Leader and head of the weather section, offers two possible explanations. The first is one that comes under the heading of suspicions confirmed: Precipitation data obtained by H-6 at LASL's Administration Building may not be representative of rainfall in the general Los Alamos area. Thus, there may have been more rainfall than was actually registered by the rain gauges.

Most of the rainfall for Los Alamos and vicinity comes from thundershowers which cut rela-

tively narrow swathes through the area and deposit irregular amounts of moisture. Stopinski feels that it is more a matter of luck than anything else if H-6's rain gauges register the representative rainfall for the area in any one year. "After all," he says, "our sampling area of 80.5 square inches represents only  $1.8 \times 10^{-10}$  of Los Alamos County." Over a sufficiently long time, though, rainfall evens out and the average precipitation figures are meaningful.

The second explanation is that rainfall this year has been much more uniform from month to month than is normally the case. This, coupled with lower than

Wind velocity and direction instruments are mounted on roof above Weather Section office suite in Ad Building.



average temperatures, means that the countryside didn't dry out in June as it normally does. Hence things stayed green.

The average high and mean temperature for the month of June were the second lowest on record. Rainfall totaled 2 inches, considerably above the average of 1.35 inches.

Although wetter than average, this year is far from the wettest on record. In 1941, Los Alamos had 30.34 inches of precipitation.

It seems remarkable, but fairly complete weather records have been kept for the Los Alamos area since 1911. The first measurements, which were for rainfall, were made by the Alamos Ranch as a part of a cooperative effort with the U.S. Weather Bureau.

When the ranch was taken over by the Los Alamos Ranch School, the measurements were continued and snowfall and temperature were added to the record. All of the early weather measurements were taken in the vicinity of what is now Ashley Pond.

After the Laboratory was formed, the U.S. Corps of Engineers continued the standard weather measurements until 1946, when the Zia Company became responsible for them. In 1949, the Laboratory asked the Air Force Air Weather Service to establish and operate a full-time weather section at Los Alamos. The Air Force kept a three-man weather unit at LASL until 1956 when a review was made of all Air Force weather operations and it was decided that the LASL unit could not be justified. Shortly thereafter, a permanent LASL weather section within H-6 was established.

LASL's weather section does not operate as a U.S. Weather Bureau facility. Although they make daily weather reports to the Weather Bureau, this is a cooperative venture, much in the fashion of the original measurements made by the Alamos Ranch.

The primary function of the weather section is to act in an ad-

visory capacity concerning proposed or actual Laboratory activities, both in Los Alamos and elsewhere. For example, Stopinski serves as a member of the Nuclear Rocket Development Station Safety Advisory Panel and the Joint Task Force-8 Hazards Evaluation Group. He has participated in all overseas weapons tests since GREENHOUSE and NTS atmospheric testing series since TEAPOT—predicting fallout, not weather. Locally, meteorologist Ralph Jennings is currently determining the low-level wind patterns around the UHTREX facility.

Nonetheless, it is the routine weather forecasting and reporting functions of H-6 that hold the most interest for Los Alamos residents. A not infrequent question to Jennings is: "With all this rain we're having, is this the start of a wet weather cycle?"

He strongly doubts it, although he forecast in February that this

would be a wet year. How did he do it? "Well," he says, "the last four years were dry—we were due for a wet one." The only weather cycle he feels can be forecast with any sort of accuracy is that "it'll be hot in summer and cold in winter."

There is one thing about the standard weather measurements that sometimes causes a problem. That's trying to measure the amount of moisture in snow. A rule of thumb used by meteorologists is that 10 inches of snow is equivalent to 1 inch of moisture. But it ain't necessarily so. Snow falling during extremely cold weather contains much less moisture than that falling when the temperature is close to the freezing point. Thus the moisture content varies from snowfall to snowfall—which doesn't make life any easier for Mr. Jennings.

Official precipitation records for

continued on next page



LASL Weatherman Orin Stopinski takes a reading from gauge station in the motor pool area at Administration Building. Records of Los Alamos weather date back more than 50 years.

# WEATHER . . .

continued from preceding page

White Rock have only been kept since last November, when the Fire Station opened. Even for this short period, records aren't complete since the rain gauge at the station was stolen in April and not replaced until early May.

One thing's certain, however, White Rock (as the inhabitants darn well know) has had more rain this year than has Los Alamos proper. In May, White Rock had 4.20 inches of rain and in June 3.63 inches fell. The combined rainfall for these two months was more than twice that registered in Los Alamos.

Most—but not all—people are happy about the weather this year. The Fire Department certainly approves of it, since fire hazards are greatly reduced. Fire Marshall Ralph Garrity declares, "It's the greenest I've seen it since I've been here. It's a good year as far as we are concerned."

There is a sizeable minority though who are sick of the weather—or more correctly, because of the weather. They are the ones susceptible to hay fever or any of the various allergies caused by pollen or seeds. Although no official pollen counts have been run in Los Alamos this year, there is little doubt that there is more pollen floating around than there has been for many a year.

The receptionist for one Los Alamos doctor confirms that there has been a large increase in the number of hay fever sufferers this summer. With inescapable feminine logic, she states, "I know it's bad. Both the doctor and I are suffering from it."

For those who wager on the weather, the following facts are useful. Average annual precipitation, which includes moisture from rain, snow, hail, and sleet, is 18.22 inches. Most precipitation for any one year was 30.34 inches, recorded in 1941. Most rainfall in one month was 11.18 inches in August 1952. There is an average of 51.4 inches

of snow each year, although here, too, the variability is quite marked. For example, only 9.3 inches of snow fell in the winter of '49-'50 while there were 123.6 inches in the winter of '57-'58.

Lowest temperature ever recorded was  $-18^{\circ}\text{F}$  on January 13, 1963. There is some controversy concerning the highest temperature recorded in Los Alamos. Official U.S. Weather Bureau Records show a 102 on August 25, 1944. However, a note sent in with the reading states that the thermometer was moved that day. Since no other stations in the area reported temp-

eratures anywhere near this high, this reading has been discounted. A 95 recorded on July 11, 1935, is now generally accepted as the temperature high for this area.

As of August 18, 4.99 inches of rain had been recorded for the month. This well exceeds the August average of 3.62 inches, but is a long way from the maximum ever recorded for this month.

In summary, the weather this year has not been average. But it hasn't been particularly unique either. And another old saw still applies: If you don't like the weather here, wait a minute.

MONTHLY WEATHER DATA FOR 1965

Month	Temperature ( $^{\circ}\text{F}$ )				Total Precipitation (inches)	Total Snowfall (inches)
	Maximum	Average High	Average Low	Minimum		
January	55	41.2	20.1	7	1.35	9.8
February	56	41.4	17.6	-5	1.15	16.7
March	64	44.4	23.0	2	0.56	5.5
April	77	57.4	34.1	22	1.72	4.2
May	76	64.7	39.7	28	1.13	Trace
June	84	73.3	47.5	38	2.00	**
July	86	79.4	55.8	50	2.25	**

MONTHLY AVERAGES AND EXTREMES  
(BASED ON ALL AVAILABLE RECORDS)

Month	(Temperature ( $^{\circ}\text{F}$ ))				Average Precipitation (inches)	Average Snowfall (inches)
	Maximum	Average High	Average Low	Minimum		
January	64 (1953)	38.8	17.7	-18 (1963)	0.90	10.7
February	68 (1939)	43.1	21.7	-14 (1951, 1933)	0.67	7.9
March	71 (1946)	49.0	25.0	-3 (1948)	1.00	10.6
April	80 (1950)	58.7	33.8	5 (1928)	1.06	4.5
May	93 (1934)	67.8	42.9	24 (1938, 1935)	1.26	0.9
June	93 (1954)	78.0	51.8	28 (1919)	1.35	**
July	95 (1935)	80.5	54.9	37 (1924)	3.13	**
August	92 (1937)	78.0	54.1	40 (1947)	3.62	**
September	94 (1934)	72.9	48.2	23 (1936)	1.92	**
October	82 (1930)	62.2	37.7	17 (1935)	1.69	0.8
November	69 (1924, 1937)	49.0	26.3	-4 (1957)	0.73	5.5
December	69 (1927)	40.9	19.9	-10 (1924)	0.89	10.5



Six busy little "astromonks" have returned to their Holloman Air Force Base quarters after successfully completing a pioneering radiation exposure experiment that partially simulated a lengthy space voyage.

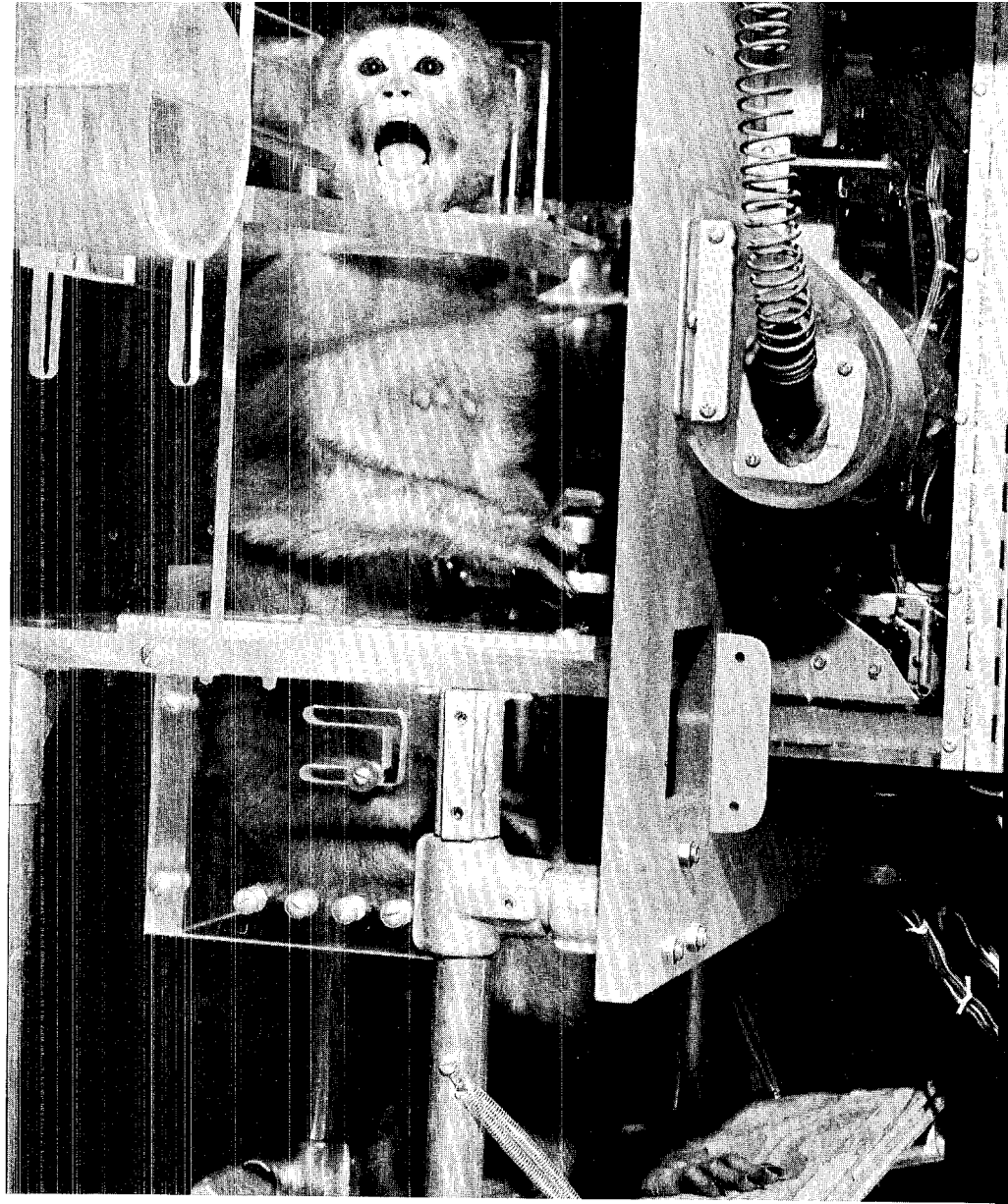
Working in plastic "capsules" in Health Division's TA-51 exposure facility, the monkeys were subjected to 10 days of gamma radiation while they performed a variety of tasks representing control operations of a spaceship pilot.

The animals demonstrated that prolonged exposure caused no impairment of their ability to work.

It was the second attempt at the "mission," a cooperative effort by LASL health physicists and Air Force animal psychologists. The

continued on next page

Photos by Mitzi Ulibarri



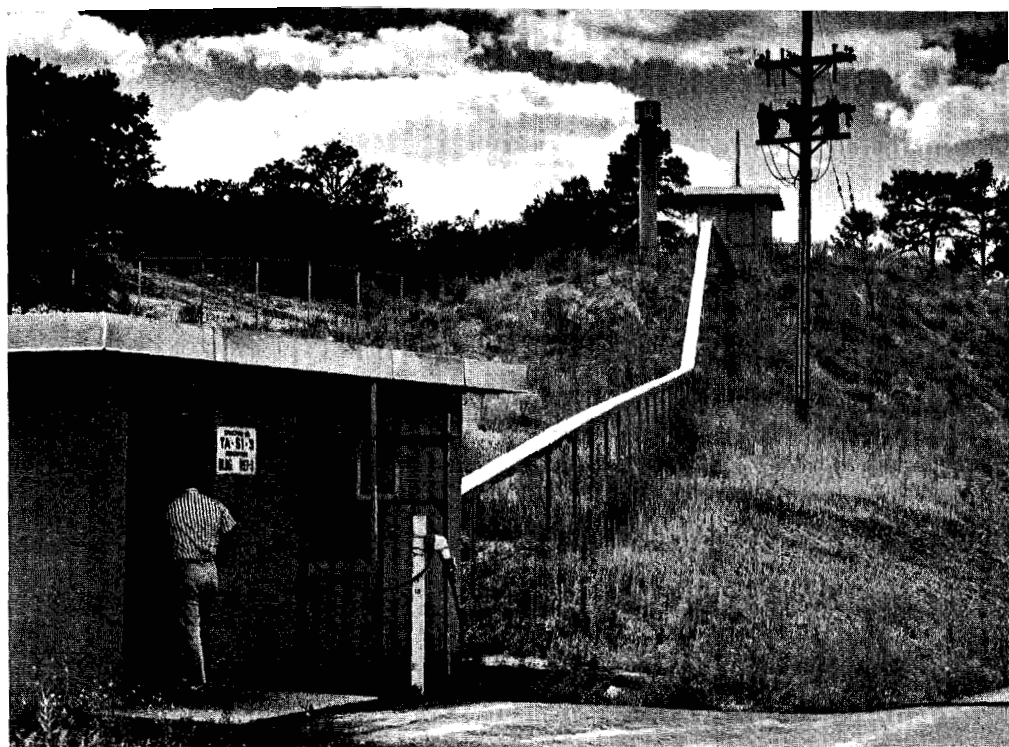
"I dood it!" could be the jubilant cry from Tamara, one of six astromonks who made a simulated space voyage in the LASL radiation environment facility.

## For Astromonks

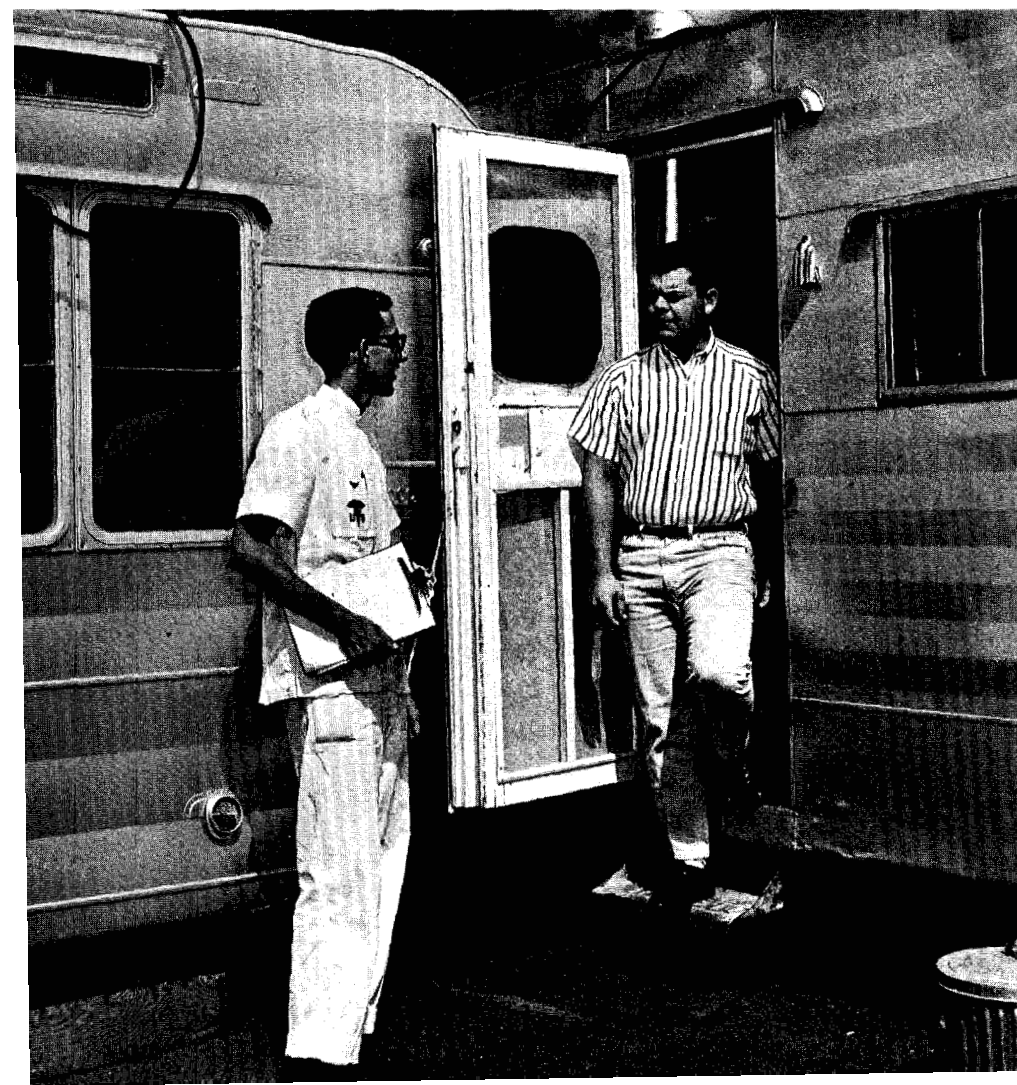
# MISSION COMPLETED

By EARL ZIMMERMAN

Right: Radiation exposure facility at TA-51. Building at left is control point. Control line conduit, leads to the top of earth-packed concrete "pillbox."



Below: Trailers were living quarters for A/3c William Zappini (left) and A/2c Guy Crook, of Holloman AFB.



first was short-circuited last winter because that team of astromonks learned how to beat the performance requirements (The Atom, February 1965). The second, which lasted from July 20 to August 20, went off without a hitch.

Although there was no performance decrement, physiological effects were apparent in the monkeys, such as a drop in the white blood cell count. How important this may be to their future health will be determined by continuing examinations at Holloman, according to Dr. John Spalding of LASL's H-4 group. Spalding and Dr. Don Farrer of Holloman were Project Officers for the experiment.

Although the radiation period of the experiment lasted only 10 days, the entire run lasted 30. This included 10-day pre- and post-exposure periods of testing to establish norms for comparison.

The monkeys were trained for six months at the "animal college" operated by the 6571st Aeromedical Research Laboratory at Holloman. They were taught to respond to coded programs of signal lights by pushing levers and buttons. Reaction times to these provocations



were measured and recorded. Any falling off in reaction time would indicate an impairment in performance ability.

Spalding said reaction times were as brief as *A* of a second for some of the animals, and remained that good.

For the experiment, the monkeys were lodged in individual plastic cubicles resembling miniature transparent cabins. Body movement was restricted by snug-fitting plastic "stocks," not unlike the safety harnesses in a manned space capsule or high-performance airplane.

The experiment routine followed a six-hour "work" and six-hour "rest" pattern. Thirty minutes were taken each day to clean the cubicles, service the exposure facility and examine the monkeys.

The rest of the time the astro-monks were alone in the big vault-like building. They were alone but not unseen; all actions were monitored by instrument and closed circuit television from the control building, about 100 yards distant.

Two Air Force specialists--A/3c William Zappini, a psychologist, and A/2c Guy Crook, an electronics specialist--came up from Holloman

and were in constant attendance for the 30-day period. They lived in trailers set up next to the control building.

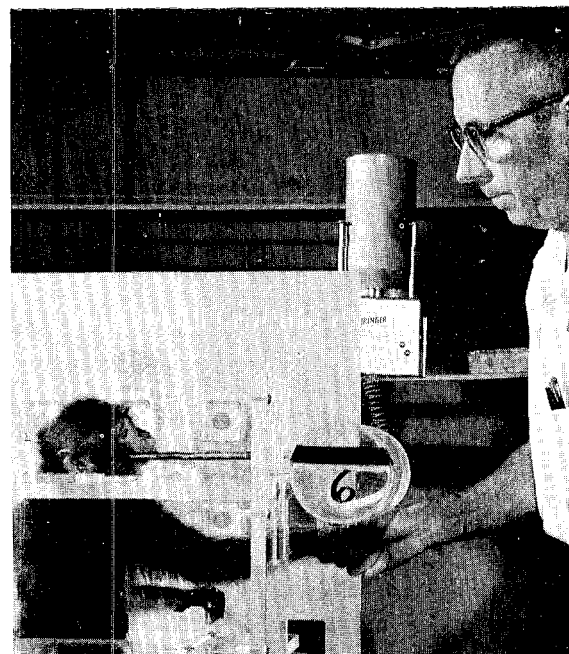
During the exposure phase an 80-curie radiation source was raised by remote control from the facility's underground storage tomb. It administered gamma at a 2 rads per hour rate--an accumulated dosage of 500 rads for the 10-day period.

Physical examinations, including blood chemistry tests, were administered to the monkeys between each of the experiment phases.

The monkeys used for the experiment were of the rhesus variety, different from the *macaca speciosa* species used last winter. The change was made because the rhesus is more amenable to the intensive training and possesses a less-padded posterior than the *speciosa*. Ample haunches of the *speciosa* were insulation for a mild shock that was part of the performance routine. When the first group of monkeys discovered this they simply and literally sat down on the job, causing its cancellation. Four females and two males weighing about 10 pounds each were used for the second experiment (they were all females last winter). Trainers at Holloman had named the 1½-year-old animals and the names are used throughout the experiment records: Rhonda, Suzanne, Stacy, Nick, Glover and Tamara.

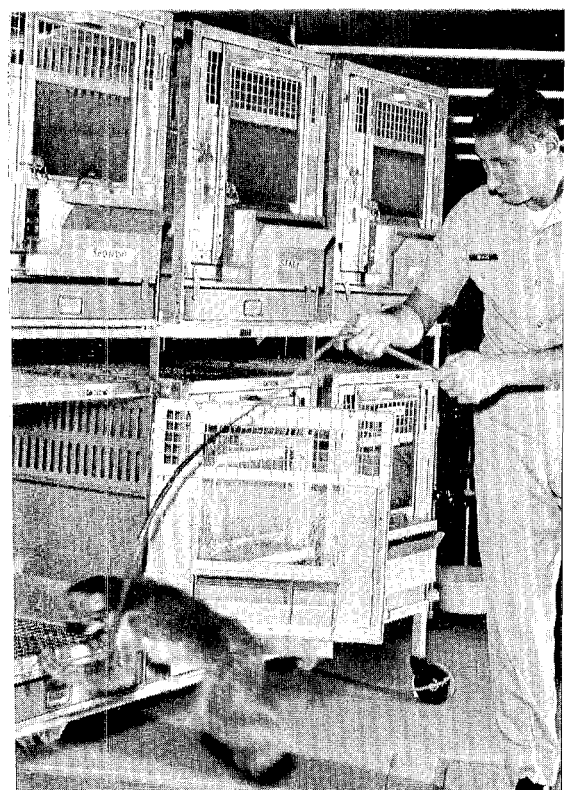
Spalding stressed that the experiment could not be likened exactly to a "for-real" space voyage because of the absence of weightlessness and other types of radiation that would be encountered on a true mission. And monkeys aren't humans.

"But we have simulated dosages that we know are possible, especially during periods of solar flares," he said. "We have made at least a good start toward learning about an environment that will have to be understood completely before we can have safe manned space travel."



Congratulatory handshake from LASL's John Spalding was symbolic of success of 30-day experiment with monkeys.

Homeward bound, Suzanne leaps into her traveling cage needing little guidance from 1st. Lieut. Robert G. Braun.



# More Landmarks Go

## *Final TA-1 Buildings, Central School Vacated for County Development*

Log cottage dating from Los Alamos Ranch School had many uses in old Main Tech Area before its abandon-

ment. At right is a portion of AP Building, an office structure created by combining Engineer Detachment barracks.





The long-pending separation of Laboratory facilities from the Los Alamos Town Site was completed last month.

Transferred to the new Administration Building Annex on South Mesa are the Personnel and Supply and Property Departments and the Community Relations Office and LASL Museum of PUB.

Writing finis to all Laboratory operations in TA-1, the Atomic Energy Commission and Zia Company have authorized removal of P Prime (P') and AP Buildings in the old Main Technical Area and two other structures dating from the earliest days of the Project, a Ranch School log cottage and the rambling Central School.

When the site is cleared, construction is to begin on the new Los Alamos County Building, a \$650 thousand gift from the AEC to the citizens of Los Alamos and their striping county administration.

Disappearing in the tide of civic progress is the little log cabin that survived the frantic Laboratory construction days of World War II and remained, a reminder of the gentler era of the Los Alamos Boys Ranch School.

The cabin was perhaps the last structure put up by the Ranch School before the entire institution was purchased by the Army in late 1942. Built earlier that year as a "master house" for Ranch School faculty, an appraisal by the Army gave the building a construction value of \$3,769. Elmo Morgan, who was an assistant director of the bomb project and now is a vice-president of the University of California, lived in the cabin during the war, sandwiched between the Post Hospital on the north and a motor pool.

The building acquired an address, 2225 G Street and when words instead of letters were assigned to streets it became 2225 Gold Street. Since that particular block never

continued on next page

Right: Movers carry boxes to waiting trucks as original Lab buildings are vacated in favor of new quarters on South Mesa, adjoining the Ad Building.



Below: Building P Prime (P') loses its last tenants. This wing of building once housed famed MANIAC I computer. Fence atop roof was part of security for Supply and Property Department.



Mrs. George Hillhouse taught second grade when Central School opened in 1943. She remained for all its 22 years, time enough to instruct children of her own earlier pupils. Mrs. Hillhouse was a teacher in Santa Fe when the Army induced her husband to sell his grocery and come to secret Los Alamos and operate the Post commissary. Now, Mrs. Hillhouse is the dean of Los Alamos schools faculty, her husband operates his own bakery, and their daughter who was in the third grade when Central opened is Mrs. Norman Wilson and lives in White Rock. Mrs. Hillhouse will teach this fall at Baranca Mesa School, a choice she registered with the Schools Office. "Since the oldest school will be gone, I thought I should try the newest one."



## Landmarks . . .

continued from preceding page

gained much identity with the rest of Gold Street, the building has been better known as T-142 or AEC-211-17 or P' Annex or TA-1-84, or more directly as "Elmo Morgan's old place" or "the little log cabin outside AP Building.

When Morgan moved to Western Area in 1947 the building became part of the Laboratory and provided office space for the burgeoning Personnel and Accounting Departments. For several years, starting in 1948, it was the location of the Medical Library. In 1957, after the Administration Building on South Mesa was completed, the Laboratory certified the building as surplus and the AEC turned it over to the Zia Company, when it was taken on lease by the Los Alamos Jewish Center. A few years later, its religious utility replaced by a new building on Canyon Road, the cottage was turned back to Zia and rented again, for the last time, for meetings of the Izaak Walton

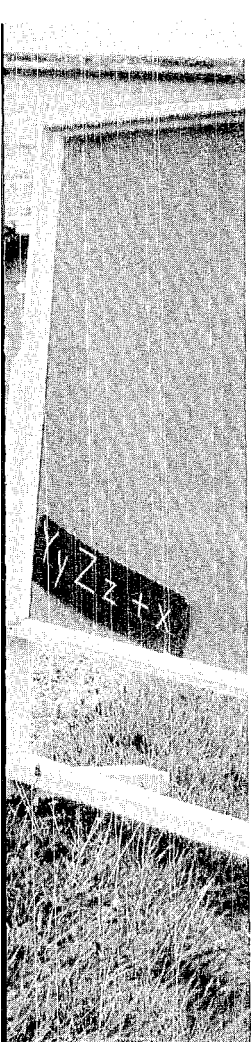
League and sub-lease use as a nursery school by Nina Miller. Its circle was complete.

Building P' was built in 1944 at a cost of \$131,972 by the R. E. McKee Company. Originally an annex to P Building, which was removed in 1959, P' was in the crescent of TA-1 buildings that sprouted on the banks of Ashley Pond. Although P' housed the Personnel (PER) and Supply and Property (SP) Departments, the south wing of the main floor was occupied by the Theoretical Division for many years. MANIAC I, the LASL-designed computer that moved the Laboratory into electronic data processing and pioneered the vacuum tube computer era, was built and operated in P' space later used by Bob Meier and his Recruiting staff.

AP Building, next door to P', was a conglomeration assembled in 1950 from Army barracks moved from the old SED (Special Engineer Detachment) compound on Fortieth

Street, not far from where the Medical Center is now. The relocation of the 20 x 150 foot barracks and their blending to an L-shaped group of offices was performed by Lippert Brothers Construction Company of Oklahoma City, Okla., on a \$78,000 contract. The offices were created for the Accounting Department but the building was soon used by the Personnel Department, too; thus the name AP Building. It stood empty for a while in the mid-1950's but was reactivated to house the Community Relations Offices of PUB, vendor rooms for SP, headquarters for PER and the LASL Public Museum. The LASL Credit Union had its offices in AP Building until its own building was completed in the Community Center two years ago.

Central School was built hastily in the summer of 1943, then added to until its corridors and rooms spread like a maze across the north-facing pine slope on the edge of

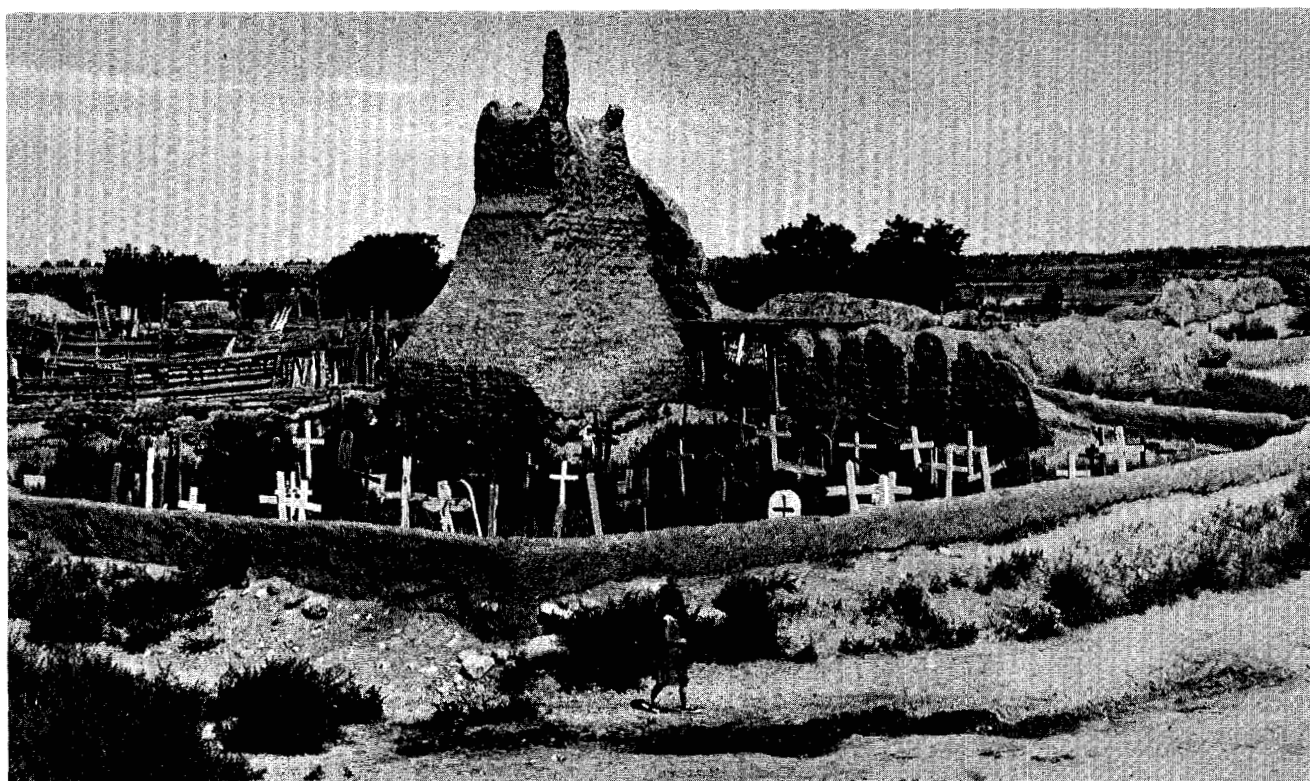


the Project. For many years Central was the entire school plant, with classes from kindergarten through high school. Despite crude construction and derision from many, Central School generated more loyalty than any other Los Alamos institution. Complaints to the contrary, Central School facilities were second to none on the Hill, they were just old and expensive to maintain. Classrooms had individual rest rooms and outside exits, there was a small auxiliary room for each teaching room and the building suffered no more than its share of heating and water failures, and it never had a fire. It died a victim of changing population centers and soaring upkeep costs.

Redevelopment of the TA-1 Central School-Sundt Apartment area is expected to take several years and except for the County Building will be done, not under the aegis of the Federal Government, but by private investors.

Departure from P' was a true uprooting for Harry Allen, head of the Supply and Property Department. Allen moved into his second floor office in November of 1945, to succeed Dana Mitchell. The office window overlooked Ashley Pond and the cluster of buildings forming the heart of the Laboratory. When the move to South Mesa was made last month, the Ashley Pond banks were bare; all the old buildings were gone. To Allen the move was not without nostalgia, but was over-shadowed by the challenge—successfully met—of not skipping a beat in the complicated operations of his department. Security safes containing records of classified material and files holding nearly 150,000 purchase orders of recent years were transferred without incident or delay.

Ada Zavadi's move to the new building was tinged with irony. She is leaving Los Alamos this fall after 19 years with the Personnel Department, almost all of it in the same big P' offices area. Miss Zavadi came to Los Alamos a few months after graduation from high school in Long Beach, Calif. "No one expected to stay long when they arrived in Los Alamos in those days, me included," she recalls. Her work in PER 3 has included the initial reading of employment applications and channeling them to various divisions and groups that might be interested in the applicant's specialty. She estimates more than 50,000 applications have passed across her desk, been circulated and returned for filing. The bright new office, she says, "is nice," but she still is planning to return to Long Beach.



Crumbling adobe bell tower of San Geronimo Mission ruins is landmark at the northwest corner of famed Taos Pueblo.

# GERONIMO

**Indians at Taos Pueblo Remember**

**Their Patron Saint**

By **PETER MYGATT**

Taos is celebrating its 350th anniversary this summer, and thousands of tourists have been taking advantage of fiestas, rodeos, film festivals, trade fairs, Indian dances, costume balls, art shows, you name it.

Still on the agenda are: the Fiesta de San Geronimo at Taos Pueblo, an annual affair held every September 29-30; aspencaedes into the Carson National Forest, October 1-10; San Francisco Procession of Lights at St. Francis d'Assisi Mission, Ranchos de Taos, October 3; Our Lady of Guadalupe Procession after vespers, Taos, December 11; Procession of the Virgin after vespers, Taos Pueblo, December 24; and the Deer Dance or Las Matachinas, Taos Pueblo, December 25.

The climax of the Taos anniversary is the Fiesta de San Geronimo which begins with the Sundown Dance on September 29—an Indian dance of thanksgiving. San Geron-



imo day itself, September 30, breaks with the firing of rifles, pistols and shotguns; not to ward off evil spirits or tourists, but in honor of Indians named Jerome, Jeronimo, Geronimo, Jeremy.

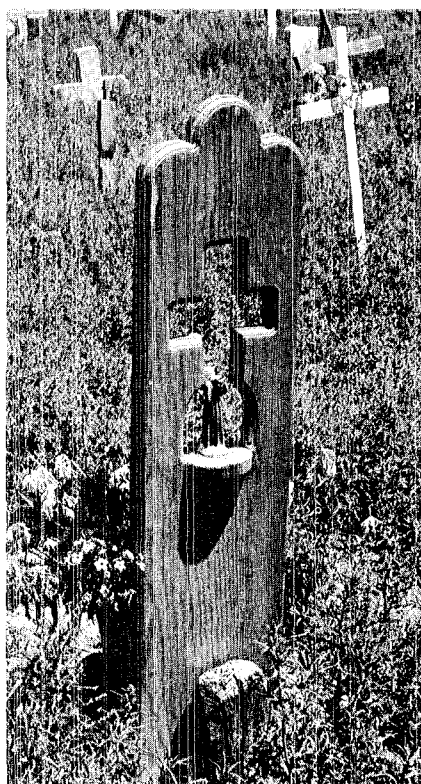
Following Mass on September 30, the traditional race between the north and south pueblos is run, dances are held, and young men attempt to climb a greased pole for the prize of a slaughtered sheep. It is a day of general feasting since San Geronimo is the patron saint of the pueblo.

Though it is a holy day, much of the symbolism of the San Geronimo celebration is tied to the Indian religion; photographs are *verboden*—cameras are snatched away from their owners and the film destroyed.

The Spanish in the early 1600s appointed San Geronimo as patron saint of the Pueblo, going so far as to name the Indian village San Geronimo de Taos. Even the old mission at Taos Pueblo, whose four-foot walls today are in crumbling ruins, bore the name of the saint.

It may seem strange that the Indians retained San Geronimo as their patron saint, particularly since they had little love for the Spanish. The real reason he has been retained may never be known, but there are a number of theories. St. Jerome was a 4th Century Doctor of the Church and a great scriptural scholar and translator. He is sometimes represented in a cardinal's robes or else half naked in an animal skin and with a lion (the latter certainly would have appealed to a primitive people). Further, the Taos Indians have had better than average agricultural successes for a good many centuries—a happy state of affairs attributed to their patron saint.

Many tourist publications claim the Mission of San Geronimo was constructed sometime between 1610 and 1627, destroyed by the Indians in the revolt of 1680, rebuilt in 1704-1706, and destroyed in 1847. Actually the early 1600 church was never rebuilt. The small adobe church built in the mid-19th Cen-



Wooden grave marker in the church yard of San Geronimo Mission ruins.

tury today stands on the traditional site of the mission in question which was built by Fray Pedro Miranda. There is also a source which mentions a Franciscan mission established at Taos Pueblo in 1598. Whether the 1598 mission and the 1610 church are one and the same can be argued.

At this point there appears to be another conflict among historians. A number of references note that the two large adobe communal houses, four or five stories high, today appear much as they did at the coming of the Spaniards in 1540. Other sources claim Taos Pueblo was rebuilt on its present site in about 1700 following the burning of the older pueblo in about 1693 or 1694. The pueblo was definitely sacked at this time by the Spaniards during the reconquest, but it appears doubtful it was burned.

The Mission of San Geronimo,

whose ruins are still visible at the northwest corner of the pueblo, today is an Indian graveyard. Fray Juan Jose Perez de Mirabal, stationed in Taos from 1722 to 1727, is credited with completing the mission that was started in 1706. There is also an historical question whether he was responsible for the mission's completion or for a completely new building. At any rate, the Mission de San Geronimo was destroyed by American forces during the battle of Taos on February 3 and 4, 1847, ending an Indian insurrection which began with the scalping and murder (in that order) of Governor Bent and the destruction of the famous Taos Lightning distillery, also known as Turley's Mill.

The mission was destroyed when U.S. troops arrived on the scene with a six-pound cannon and three howitzers. The Indians were using the church as a defensive fortress, and shells from both cannon and howitzers bounced off the thick adobe walls. Finally, the six-pounder was moved to within 10 yards of the west wall and a small hole was blown through the adobe. Troops moved in with axes to widen the hole and effect a breach in the mission wall, and grape shot was poured into the structure. About 150 Indians died in the encounter as against seven Americans killed.

Whether 1965 is the 350th anniversary of Taos is questionable; that Taos is at least 350 years old is unquestionable. Captain Alvarado visited Taos in 1540—425 years ago; Gaspar Castano de Sosa brought the first settlers into what is now New Mexico in 1590, pushing up the Rio Grande as far as Taos Pueblo only to receive a cold reception from the Indians which necessitated a quick withdrawal down stream; and the first European settlers at Taos were probably from the New Mexico colony established by Don Juan de Onate in 1598 across the Rio Grande from the present site of San Juan Pueblo near Espanola.

# The Technical Side

Conference at New Mexico Highlands University, sponsored by New Mexico Academy of Science "Science and Modern Society," July 14:

"Fission, A Prime Energy Source Today" by Harold M. Busey, K-DO.

International Conference on the Study of Nuclear Structure with Neutrons, Antwerp, Belgium, July 18-23:

"Experiments with Polarized Protons and the Neutron-Nucleus Potential Derived Therefrom" by Louis Rosen, MP-DO. (INVITED PAPER)

"Neutron Experiments with Underground Nuclear Explosions" by B. C. Diven, P-3. (INVITED PAPER)

Meeting of AEC and Contractor Staffs, Jackson Lake Lodge, Wyoming, July 26-27:

"Comments on the Operation of a Plutonium-Fueled Reactor" by Rolf E. Peterson, K-DO.

Symposium on Nondestructive Testing, Huntsville, Ala., July 29:

"Industrial Radiography" by G. H. Tenney, GMX-1.

IX Congreso Latinoamericano de Química, San Juan, Puerto Rico, Aug. 1-8:

"The Crystal Structure of  $\text{CuCN} \cdot \text{NH}_3$ " by Don T. Cromer, Allen C. Larson, and R. B. Roof, Jr., all CMF-5.

"The Crystal Structure of the Copper (I) Cyanide Hydrazine Complex,  $\text{CuCN} \cdot \text{N}_2\text{H}_4$ " by Don T. Cromer, Allan C. Larson, and R. B. Roof, Jr., all CMF-5.

Office of Naval Research Second Research Seminar on Applied Research, Sandia Corp., Albuquerque, N.M., Aug. 10:

"Interaction of Basic Research and Development" by Louis Rosen, MP-DO.

"Materials Development at the Los Alamos Scientific Laboratory" by James M. Taub, CMB-6.

National Science Foundation Summer Institute for College Teachers of Physics, Columbus, Ohio, Aug. 16:

"Current Research in Nuclear Physics" by R. B. Leachman, P-12.

Presentation at Session VI, Advanced Study Institute "Radiation Trapped in the Earth's Magnetic Field", Bergen, Norway, Aug. 16-Sept. 3:

"The Motion of Bomb Debris Following the Starfish Test" by John Zinn, Herman Hoerlin, both J-10, and Albert G. Petschek, T-12.

Seventh International Conference on Phenomena in Ionized Gases, Zagrad, Yugoslavia, Aug. 22-27:

"Quantitative Spectroscopy of Cesium Plasmas" by Lewis Agnew and Charles Summers, both N-5.

"Theta-Pinch Sources of Vacuum Ultraviolet Radiation" by George A. Sawyer and N. J. Peacock, both P-15.

Cryogenic Engineering Conference, Houston, Texas, Aug. 23-25:

"An Automatic Liquid Nitrogen Distribution System for Twenty-Five Cold Traps" by J. H. Fretwell and J. R. Bartlit, both CMF-9.

"Experimental Study of  $\text{H}_2\text{O}$ - $\text{LH}_2$  Heat Exchangers: Part II" by J. R. Bartlit and K. D. Williamson, Jr., both CMF-9.

"Behavior of Perlite in Compression" by Jan K. Novak, CMF-9.

"Chilldown and Storage Losses of Large Liquid Hydrogen Storage Dewars" by D. H. Liebenberg, R. L. Stokes, and F. J. Edeskuty, all CMF-9.

"A Cryostat for Isod Impact Testing" by D. T. Eash, CMF-13.

"Project Rover Cryogenic Evaluation Laboratory" by Robert W. Stokes, CMF-9.

Informal discussion at Gordon Research Conference on Ion Exchange, Colby Jr. College, New London, N.H., Aug. 2-6:

"Plutonium(IV) Nitrate Anion-Exchange Sorption Kinetics" by Dean B. James, CMB-11.

Conference on Design of Leak-Tight Fluid Connectors, Marshall Space Flight Center, Huntsville, Ala., Aug. 4-5:

"The Importance of Quality Control and Integrity Checking" by John C. Bronson, CMF-9.

American Astronomical Society Meeting, Ann Arbor, Mich., Aug. 4-6:

"Theoretical Line Profiles for Three Model Solar Atmospheres" by J. Paul Mutschlecner, J-15.

University of New Mexico Radiation Biology Institute, HRL Bldg., Los Alamos, Aug. 6:

"Radiation Dosimeters" by Dean D. Meyer, H-1.

Aerospace Workshop for Elementary and Junior High School Teachers, Western New Mexico University, Silver City, Aug. 9:

"Environmental Radioactivity with Demonstration of Laboratory Survey Instruments" by Dean D. Meyer, H-1.

American Mathematical Society Meeting, Ithaca, N. Y., Aug. 30-Sept. 3:

"On Some Possibilities of Generalizing the Lorentz Group in the Special Relativity Theory" by C. J. Everett, T-8, and S. M. Ulam, DIR-OFF.

Twenty-third Annual Meeting of the Electron Microscopy Society of America, New York City, Aug. 24-27:

"Electron Microscopy of Plutonium Aerosols" by W. D. Moss and H. J. Ettinger, both H-5.

Symposium on Superfluid Helium, University of St. Andrews, Fife Scotland, Aug. 26-28:

"Narrow Channel Flow" by E. F. Hammel and W. E. Keller, both CMF-9.

continued on next page

## *New Hires*

Martin A. Ott, Jackson, Wyoming, J-11

Linda Kay Greenwood, Los Alamos, SP-1

Jack R. Busse, Canton, Ohio, SD-2 (Rehire)

James D. Newkirk, Grants Pass, Oregon, K-1

Richard D. Bramlett, Espanola, N.M., CMB-6 (Rehire)

Edward C. Walterscheid, Livermore, Calif., PUB

Lawrence B. Dauelsberg, Portland, Oregon, CMF-13

Dudley M. Lynch, Hereford, Texas, PUB

Helen C. Kiefer, Los Alamos, P-11 (Part Time)

Toni Cleo Romero, Santa Fe, N.M., SP-1

William R. Kennedy, IV, Los Alamos, H-1 (Rehire)

Stella J. Herrera, Los Alamos, AO-DO (Rehire)

Ronald Lee Makin, Joseph, Oregon, CMB-3

El Ray Pyeatt, Memphis, Texas, ENG-2

Linda W. Tyra, Fairview, N.M., BUS-OFF (Rehire)

John Carrol Scott, Denver, Colo., ENG-2

Manuel Lopez, Velarde, N.M., PER-4 (Casual)

Helen Louise Green, Los Alamos, N-1

Ronald D. Clayton, Los Alamos, SP-3 (Short Term)

Franklin J. Naivar, Taylor, Texas, P-2

Darrell M. Drake, Stillwater, Okla., P-DO

Catherine E. Markham, Los Alamos, GMX-1 (Part Time)

David B. Fradkin, Washington, D.C., N-7

James T. Spence, III, Los Alamos, J-12 (Rehire)

Lee Edward Emmert, St. Marys, Penna., ENG-3

Joyce Ann Copenhagen, Los Alamos, P-14

Ruth W. Evans, Taos, N.M., PER-4 (Short Term)

Chris Ross Espinosa, Santa Cruz, N.M., SP-3

Patricia E. Sattler, Los Alamos, H-2 (Casual)

Claudia B. Tesche, Los Alamos, N-2 (Short Term)

Connie Jean Davis, Los Alamos, SP-DO

Sam McClanahan, Oak Ridge, Tenn., CMB-3

Jackson S. Couch, Los Alamos, J-11 (Casual)

Edward G. Arntzen, Denver, Colo., ENG-2

Howard W. Borer, Moscow, Idaho, T-1

Adelheid M. Ruess, Los Alamos, K-DO (Part Time)

Robert Bruce Lyon, Memphis, Tenn., SP-1

Robert H. Hendron, Los Alamos, K-3 (Rehire)

Linda Lee Haley, Pojoaque, N.M., N-4

Peggy Jo Whittemore, Los Alamos, D-2

Bonnie Lee Marriott, Los Alamos, SP-1 (Rehire)

Jennie Ortiz Rowlison, Los Alamos, D-2 (Rehire)

James Richard Eichor, Denver, Colo., MP-2

Kaye M. Miller, Los Alamos, K-DO (Rehire)

Leo G. Chelius, Jr., Los Alamos, T-1 (Rehire)

Fred Wilbur Ferrell, Idaho Falls, Idaho, N-7

Gerald L. DePoorter, Berkeley, Calif., CMB-3

Jack A. McMurray, Oak Ridge, Tenn., CMB-3

William W. Randles, Oak Ridge, Tenn., CMB-3

Gloria Jean Apodaca, Los Alamos, AO-1

Lars N. Engel, Baltimore, Md., MP-3

Bobby Joe Phillips, Oak Ridge, Tenn., CMB-3

Jerald Guy Dunn, Los Alamos, SP-3

James William Spotts, Albuquerque, N.M., CMB-14

Kenneth D. Hornbeck, Dallas, Texas, ENG-3

Charles E. Frantz, Jr., Indianapolis, Ind., H-7

Carlos Peter Mendoza, Albuquerque, N.M., M&R

Charles H. Blomquist, Rockford, Ill., H-4

Cecil G. Davis, Jr., San Diego, Calif., J-15

Jerry Ray Buchholz, Livermore, Calif., H-7

Rosalie T. Mendez, Santa Fe, N.M., SP-1

Dale T. VanBuren, Holmdel, N.J., MP-1

Robert S. Foster, Spokane, Wash., T-1

### **Fourth National Meeting of the Society for Applied Spectroscopy, Denver, Colo., Aug. 30-Sept. 3:**

"Time Resolved Zeeman Spectra in the Megagauss Region" by W. B. Garn, R. S. Caird, C. M. Fowler, and D. B. Thomson, all GMX-6.

"The Study of Fast Gas Reactions by High Resolution Absorption Spectroscopy and Flash Photolysis" by Rolf Engleman, Jr., GMX-2.

"Emission Spectrochemical Analysis of Plutonium by the Anion Exchange Separation--Graphite Spark Technique" by James F. Murphy, CMB-1.

"Spectrochemical Determination of Yttrium in Tantalum and Tantalum-Tungsten Alloys" by Oliver R. Simi, CMB-1.

"X-ray Absorption Edge Determination of Plutonium in Nitric Acid Solutions" by E. A. Hakilla, R. G. Hurley, and G. R. Waterbury, all CMB-1.

# LABORATORY SADDENED BY MULTIPLE DEATHS

Tragedy and death in distressing measure have been thrust upon the Laboratory community in recent weeks.

The death July 29 of Al Graves saddened the entire scientific world and the residents of Los Alamos in particular. Graves, 55, came to the Hill in 1943 after working with Enrico Fermi in Chicago. He had headed the Laboratory's Test (J) Division since 1945 and was respected worldwide as a physicist. At home he was respected, too, as a devoted family man and civic leader.

Thrice elected to the School Board, Graves helped guide the school system through its period of greatest expansion; he was an organizer of the town's first home-owned bank and was chairman of its Board of Directors; he was a prime-mover in the effort to achieve a YMCA youth center, and was an enthusiastic supporter for all activities designed to assist Los Alamos citizens in their move toward civic "normalcy."

At the Nevada Test Site and the Pacific Proving Ground, Graves was an institution. Few were the nuclear tests conducted without him as director or senior advisor. He was perhaps more knowledgeable of the behavior of nuclear weapons than any other man in the world.

Graves died of a heart attack suffered while on vacation in Colorado with his wife, Elizabeth,

and three children. Mrs. Graves is a group leader (P-6) in Physics Division.

A young metallurgical engineer, Paul R. Munding, died August 8 at the Medical Center after a long illness. Munding, who was 30, had been a LASL staff member in CMB-6 since 1958. He is survived by his wife, Constance, and a daughter. Services were in Tucson, Ariz.

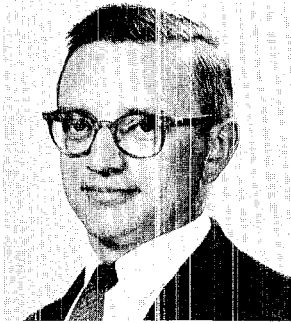


On August 15 three veteran Laboratory staff members were killed in a mountain climbing accident near Aspen, Colo. Drs. Herbert E. Ungnade, Frank Pretzel and Robert B. Day died when they fell nearly 1,000 feet down a steep rock-strewn field high on South Maroon Peak. Another Los Alamos climber in the party, William B. Martin, survived the fall but was injured.

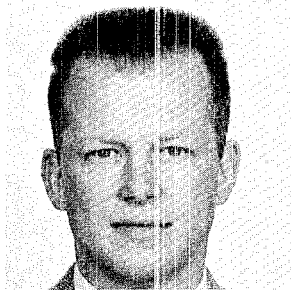


Ungnade, 54, was an organic chemist in GMX-2. He came to Los Alamos in 1954. Survivors include his wife, Paulina, and three children.





Pretzel, 44, had been a LASL staff member since 1952 and was a chemist in CMB-3. He is survived by his wife, Mary, and three children.



Day, 42, was a physicist in Physics Division and had been with the Laboratory since 1952. Survivors include his wife, Jean, and five children.

Associates of Dr. Day have established a memorial fund to benefit the New Mexico Association for Retarded Children. The Los Alamos Unitarian Church is custodian of contributions.

All three victims were active participants in various Los Alamos outdoors organizations. Ungnade had recently published a book on the mountains of New Mexico. Day was the current president of the Los Alamos Outdoors Association. Pretzel was current vice-president of the Los Alamos Mountaineers.

A heart attack took the life August 17 of John Pilch, a D-8 photographer since 1948. Pilch, 52, was stricken while at work at the Nuclear Rocket Development Station in Nevada and died a few hours later in the hospital at Mercury. He served in the Air Corps during World War II. Only immediate survivor is a brother in Florida.



Joe F. Lemons, 50, Group Leader of CMF-2, died August 26 in an Albuquerque hospital after an extended illness. A physical chemist, Lemons had been a Laboratory staff member since January 1946 and had headed CMF-2 since June of that year. He was a recognized authority on the application of high explosives to weapon development and the chemistry of plutonium compounds.

Lemons was a graduate of Texas Tech (BS) and the University of Texas (MA and Ph.D.). He is survived by his wife, Lucille, and three children.



# WHAT'S DOING

**OUTDOOR ASSOCIATION:** No charge; open to the public. Contact leader for information regarding specific hikes.

Thursday, September 16, general meeting, 8 p.m. at home of Bob and Barbara Skaggs, 3205 B Walnut Street.

All interested persons invited to attend.

Saturday, September 25, Caballo Mountain north of Los Alamos, for aspen viewing. Al Petschek, leader.

**EXHIBITIONS:** Museum of New Mexico, Santa Fe, buildings open 9 a.m. to 5 p.m. Monday through Saturday; 2 p.m. to 5 p.m. Sundays and holidays.

Fine Arts Building—American Primitive Watercolors, closes September 6; 1965 Fiesta-Biennial, closes September 12; Watercolors of Santa Fe, opens September 12; Paintings by Loyce Easley, opens September 19; Leon Gaspard: A Retrospective Exhibition, opens September 19.

Museum of International Folk Art—Textiles from Java, Bali, Sumatra: Shadow Figures from Siam, closes September 6; Gyotaku: Japanese Fish Prints, opens September 12; The Shape of Music, opens September 26; Five Continents, Gifts and Purchases, all month.

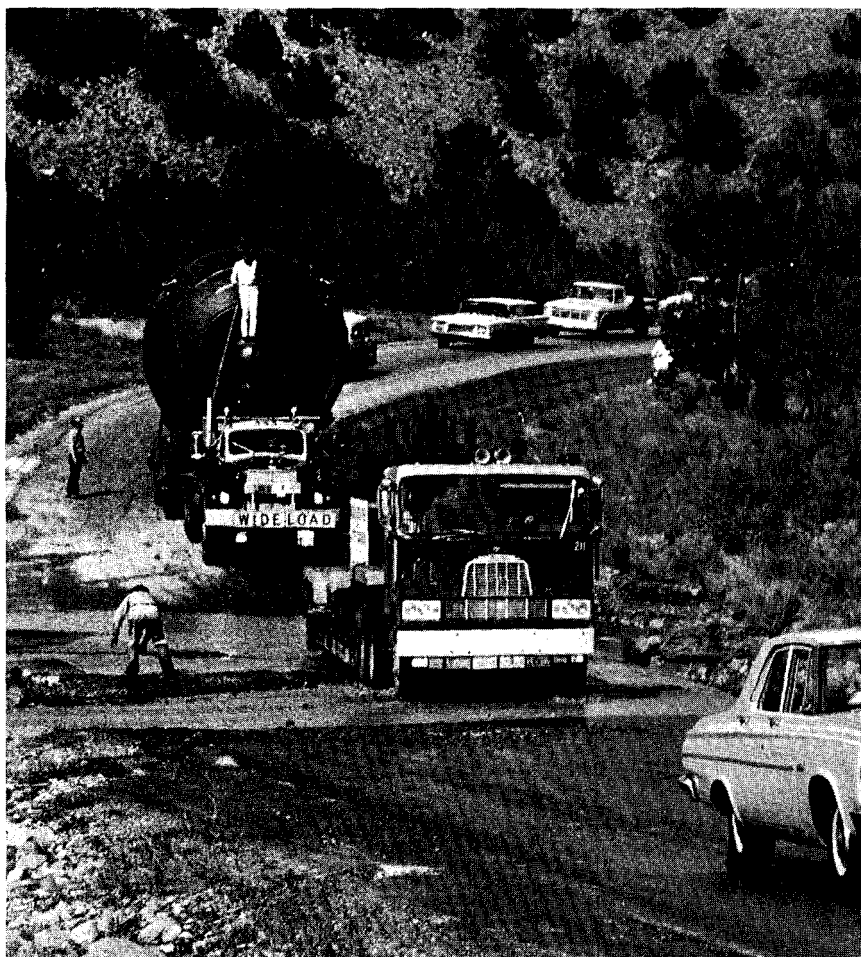
**KIWANIS KIDS DAY:** Saturday, September 11. Sponsored by Los Alamos Kiwanis Club. No charge. Swimming events 9 a.m., High School Pool; Mongrel Marathon 10 a.m., Diamond Drive-Canyon Road Parking lot; Mad Hatter's Tea Party, 10:30 a.m., front of Lodge; Pet Show 1 p.m., Diamond Drive-Canyon Road parking lot; Athletic Events 2:30 p.m. Sullivan Feld.

**PUBLIC SWIMMING:** Los Alamos High School Pool. Adults 35 cents, children 15 cents. Saturday and Sunday, 2 to 6 p.m. Monday, Tuesday and Wednesday, 7 to 9 p.m.

**SPORTSMEN'S CLUB:** Annual Bar-B-Q and Turkey Shoot, September 26.


**CIRCUS:** Annual Shrine Circus (Rudy Brothers), Sullivan Feld, Wednesday September 15, 4 p.m. and 8 p.m. Tickets available from Shriners, Los Alamos Drug, Dragonn Drugs, and at the field at time of performance. Proceeds support Shrine hospitals and burn treatment research.

**LEAGUE OF WOMEN VOTERS:** Open meeting for all women interested in government. September 9, 8 p.m., Barranca Mesa School gymnasium. Mrs. Paul Noland, meeting chairman.



Comin' round the mountain is the huge UHTREX reactor vessel, on the last leg of a 1500-mile trip from the Nooter Corporation in St. Louis, Mo., to installation at TA-52. The great ball-shaped steel vessel weighs 55 tons. After off-loading from a rail car in Albuquerque the vessel was brought by truck to Los Alamos on August 23. Picture is near Totavi, where the reactor vessel and other traffic waited out a flash runoff in an arroyo. Lead truck carries 10-ton vessel "lid."

## For Reporting Change of Address

Previous   
Address

name

address


city

state

zip code

If your address has changed please inform THE ATOM by clipping and filling out this coupon. Print or type your name and both your old and new addresses.

Mail to: Mail and Records,  
Addressograph  
Los Alamos Scientific Laboratory  
Box 1663  
Los Alamos, N.M. 87544

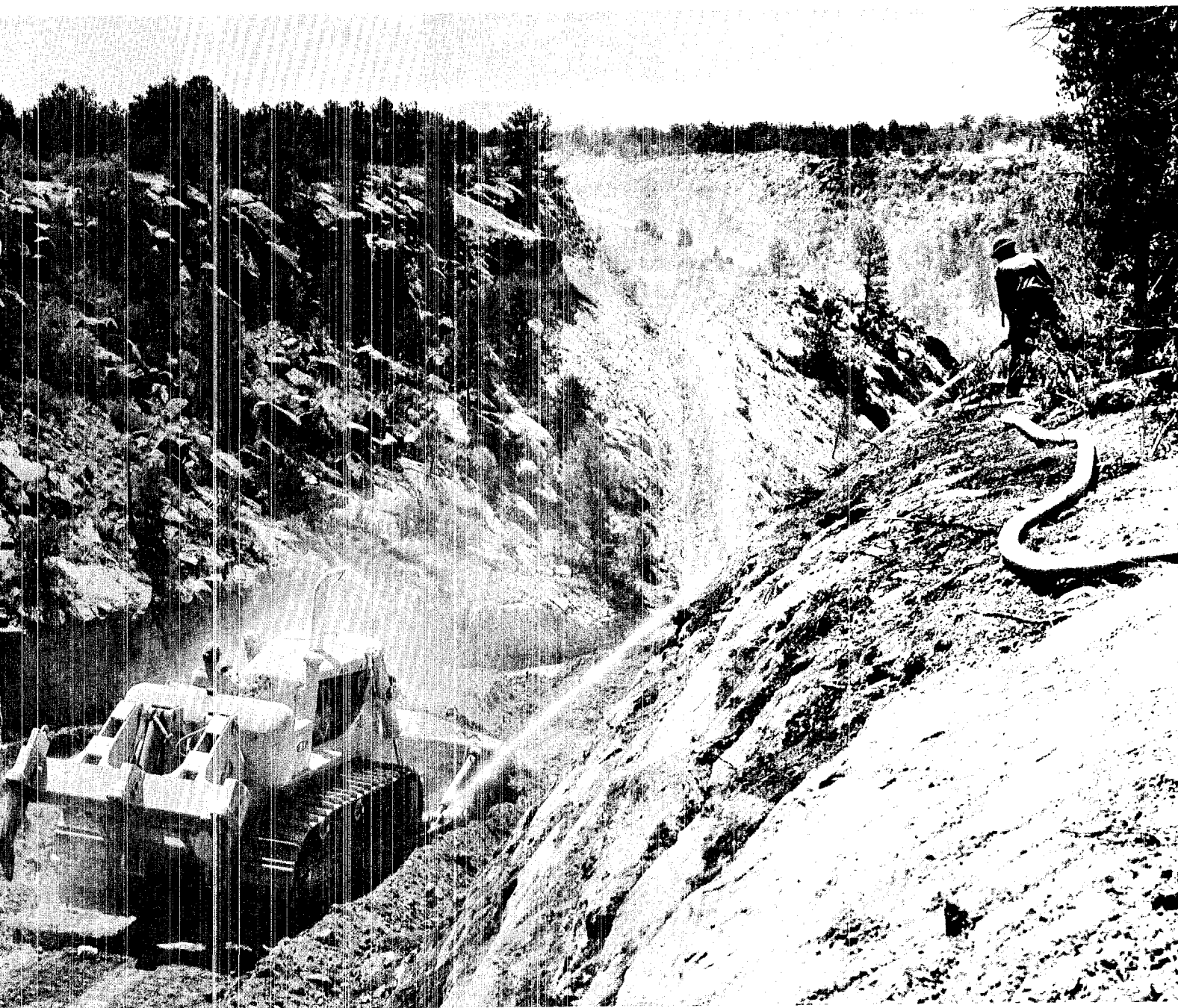
New   
Address

address

city

state

zip code



Shape of things to come is apparent in this photo of "cut and fill" operation on Pajarito Road above TA-18. Work by Zia Company's Los Alamos Constructors, Inc., is paring some 80 feet from salmon cliffs of Pajarito Canyon to produce a more gentle access, reducing the winding road from 12 per cent grade to 7 per cent. The road probably will be closed until the end of September.

Back Cover: This floodlike situation developed in the parking lot of the new Administration Building Annex last month when a heavy rain washed construction debris into the drain. Zia Foreman Eddie T. Garcia corrected the trouble with a rake and the water swirled down the drain with a slurp.



Henry T. Motz  
3187 Woodland  
Los Alamos, New Mexico

87544